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## THE EFFECT OF ATTENDANCE UPON SCHOOL ACHIEVEMENT

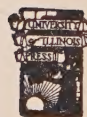
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## The Effect of Attendance Upon School Achievement

In connection with a recent experiment<sup>1</sup> in the promotion and classification of pupils the writer had to determine the placement of a large number of pupils. As a basis for so doing various items of information concerning each pupil were collected. Among these items was a record of the scores made upon several intelligence and achievement tests. These tests were given near the close of each of the several semesters that the experiment continued. The attendance record showed the percent of time that each pupil was present from the first of each semester until the time the tests were given. In the case of pupils who were not enrolled at the first of the semester their attendance records were computed on the basis of the time elapsing after they entered. Another item of information secured was the average school mark. This mark was given by the classroom teacher and was the average of the marks made in the following seven subjects, or in as many of them as the pupil happened to be carrying: Arithmetic, English, Geography, History, Reading, Spelling and Writing. It was computed for the same period of time as the percent of attendance, that is, from the first of the semester until the time that the tests were given.

In carrying out the placement of pupils it was in many cases necessary to confer with the various teachers taking part in the experiment. In discussing what effect the attendance record of a pupil should have upon his placement these teachers expressed two opinions that were radically different. Many of them believed that if a pupil had been absent any considerable portion of a semester he should not be promoted at the end of the semester. They argued that no matter how bright he might be he had missed a certain amount of work that he should have covered and should not go ahead until he had completed it. Furthermore, if it was suspected that attendance had been poor largely as the result of disinclination to attend school these teachers believed that it was only just that the

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<sup>1</sup>This experiment is described in Bulletin No. 12 of the Bureau of Educational Research.



pupil should be penalized by being failed. They said that if he were allowed to go ahead it would produce the impression that attendance was not an important matter and thus encourage further truancy. On the other hand many teachers took the opposite viewpoint. If a pupil had done rather poor work during the semester because of a large amount of absence they said that if his ability justified it he should not be denied promotion. This was supported by the argument that the pupil would have been able to do the work if he had been present and therefore should not be held back. This argument was of course applied only in the cases of pupils of average or superior ability. Furthermore, it was said that in the case of a pupil who stayed out of school because he disliked to attend the condition would be made worse by failing him as this would result in still greater dislike of school. Because of these two radically divergent viewpoints the writer was interested in making a study of the question named above in order to see what effect attendance or non-attendance actually produces upon the achievement of pupils.

As was stated, certain achievement tests were given near the end of each of the several semesters. These tests covered reading and arithmetic and also some spelling in the lower grades. The scores made thereon were converted into achievement ages and quotients. By computing the gain from one testing period to another it was possible to find the approximate increase in achievement age during each semester. Table I shows the percent of pupils included in each attendance group, their median achievement age at the end of the semester, their median achievement quotient at the same time, their median increase in achievement age during the semester and their median average school mark for this time. It is to be interpreted as follows: approximately 75.3 percent of all pupils attended from 91-100 percent of the time. This group had a median achievement age at the end of the semester of 11.1 years, a median achievement quotient of 107.8, a median increase in achievement age of 1.4 years and a median average school mark of 3.1.<sup>1</sup> From the third column it appears that there is a definite tendency for higher achievement

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<sup>1</sup>The average school marks were computed on a scale of 5 points, 1 being the poorest and 5 the best. These numerical marks were equivalent to the following expressions: 1=poor; 2=fair; 3=good; 4=excellent; 5=superior.

TABLE I. RELATION OF ATTENDANCE TO ACHIEVEMENT  
DURING THE SAME SEMESTER

Percent of Attendance	Percent of Pupils Included	Median Achievement Age	Median Achievement Quotient	Median Increase in A. A.	Median Average School Mark
91-100	75.3	11.1	107.8	1.4	3.1
81-	15.9	10.6	107.2	1.3	2.9
71-	4.7	10.4	106.8	1.2	2.7
61-	1.7	10.4	105.4	1.5	2.6
51-	.8	10.2	109.2	1.6	2.4
41-	.7	10.4	113.3	1.6	2.5
31-	.3	9.4	103.3	.0	2.4
21-	.2	9.2	95.0	.3	2.4
11-	.2	9.0	103.3	.5	2.5
1-	.2	9.9	90.0	1.5	2.4
All	100.0	11.0	107.5	1.4	3.0
No. of Cases		23,036	6,874	13,746	22,803

ages to be associated with better attendance. The median achievement quotients and increases in achievement age show this tendency very slightly if at all. There is a small increase in the medians of the three highest attendance groups which of course contain the bulk of the pupils. But on the other hand there are several groups lower than these whose medians are larger. The lowest medians are, however, found among the groups that have poor attendance records. The column of average school marks tends to agree with column three. Although there is no appreciable change one way or another in the lower half, in the upper the medians rather steadily increase along with better attendance. It is noteworthy, however, that even in the group with the lowest percent of attendance the median school mark is 2.4, or almost half-way between "fair" and "good."

The median percents of attendance for all pupils of each given achievement age, quotient, increase, and school mark were also computed. A study of these medians shows the same tendencies that have been mentioned; the pupils who had the higher achievement ages and school marks tended to be those with the higher percents of attendance, whereas this was very slightly if at all true in the case of the achievement quotients and increases in achievement age. The evidence presented by Table I and the medians just referred to is a



little conflicting. A common-sense view of the situation would appear to be that attendance during a given semester is more closely associated with the work done during that semester, that is the increase in achievement, than it is with the achievement age or quotient at the end of the semester, which represents total achievement since entering school. This is, however, apparently not the case in so far as the figures given above show. The evidence of the school marks tends to corroborate what we should expect, that the pupils who attend better secure higher marks.

Partly because of this unexpected result and partly for other reasons it was thought desirable to study the relation of attendance during one semester to achievement during the next. Table II presents the same data as certain of the columns of Table I except that they are computed for the semester following that for which the attendance was taken. The data in this table do not show strikingly different tendencies from those in Table I. Perhaps the most noteworthy difference is that the median increases in achievement age for the three lowest attendance groups are very high. A possible explanation for this is that the pupils in these groups tended to make small increases during the same semester for which the attendance record was taken and therefore during the following semester they balanced this by making unusually large ones. This might have been caused by pressure on the part of the teacher or hard effort and diligent application on the part of the pupils. The tendency for the median average school mark to increase along with attendance is somewhat less noticeable than was shown by the data in Table I but is still present.

Summing up the evidence it appears (1) that the percent of time which a pupil attends school has a rather definite effect upon his achievement age at the end of the period under consideration, (2) that it has practically no effect upon his actual increase in achievement age unless his attendance record is very poor in which case it lessens it for the same semester and increases it for the following one, and (3) that it is fairly closely related to his average school mark for the same semester and somewhat less so to that for the following one. On the whole the attendance appears to be a factor conditioning achievement but not so weighty a factor as many have believed.

TABLE II. RELATION OF ATTENDANCE TO ACHIEVEMENT  
DURING THE FOLLOWING SEMESTER

Percent of Attendance	Percent of Pupils Included	Median Increase in A. A.	Median Average School Mark
91-100	75.3	1.3	3.1
81-	15.9	1.5	3.0
71-	4.7	1.0	2.9
61-	1.7	1.1	2.9
51-	.8	.8	2.6
41-	.7	.8	2.9
31-	.3	1.9	2.7
21-	.2	3.0	3.0
11-	.2	2.5	2.9
1-	.2	3.3	3.1
All	100.0	1.3	3.1
No. of Cases		7,074	12,773

In connection with this study of attendance it was thought worth while to determine whether or not pupils tend to be present at school about the same percent of the time semester after semester. In other words, are most of the pupils who attend rather regularly any one given semester likely to do so during the succeeding one and vice versa? In order to answer this question the attendance records during the first and second semester of the same school year were correlated. The coefficient of correlation was found to be  $.19 \pm .01$ , which indicates that there is a small but definite amount of correlation. This is further shown by computing the median percent of attendance for the second semester of each of the ten-percentile groups for the first. Although these medians do not run in regular order they show on the whole an increase from the lower groups to the higher. This is especially marked in the six highest groups. A similar condition is found when the attendance groups for the second semester are compared with the corresponding medians for the first. These data would seem to point to the fact that poor attendance is not caused by persistent truancy so often as has been supposed. It must be remembered, however, that these data were secured from a portion of the Chicago school system and that in this system the



compulsory attendance department is rather efficient, enough so that it is difficult for pupils to be absent without a good cause very long at a time.

Another matter of interest is whether or not there is any relation between the intelligence of pupils and their attendance at school. In order to investigate this the records of those pupils who were in school during the four semesters for which data were obtained were studied. The average intelligence quotient resulting from four mental tests<sup>1</sup> was correlated with the average attendance during four semesters. These data were complete for almost 4000 pupils. The coefficient of correlation was found to be  $.06 \pm .01$ , which shows that there was practically no correlation. A study of the medians supports this. The median I. Q. for the pupils who attended from 91 to 100 percent of the time was the highest of that of any of the groups, but except for this the medians do not show any general tendency in either way. There is also a very slight tendency for the median percents of attendance of the groups having different intelligence quotients to increase. We are not justified, however, in concluding from this study that there is any relation between intelligence and attendance in school.

Those who wish to compare the attendance records of their pupils with those of the pupils in this experiment may do so by means of the second column in each of the two tables. This shows that approximately three-fourths of the pupils attended from 91 to 100 percent of the time. The median attendance for all pupils concerned was 94.4 percent. It was also found that, although considering the semesters separately about 2.2 percent of the pupils attended less than 61 percent of the time, when the average attendance of those pupils in school during the whole four semesters was computed only about .2 percent had attended less than 61 percent of the total time. This is what might be expected from the fact that the correlation of attendance in succeeding semesters was found to be rather low.

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<sup>1</sup>In some cases the pupils were tested with two different mental tests, one of which was used three times, whereas in others three different tests were used, one of them being used twice.